PoliPUMP

Multi-outlet Grease Pump

User operation and Maintenance manual

Warranty

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http://www.dropsa.com

Manual drawn up in accordance with
EC Directive 06/42

C2204IE - WK 16/13

1. INTRODUCTION

This operation and maintenance manual refers to the **PoliPUMP** lubrication pump, and includes essential information regarding correct operating and safety procedures design to ensure safe and reliable operation of the unit.
You can obtain the latest release of this document by contacting a Dropsa sales office or distributor or by visiting us on the World Wide Web at http://www.dropsa.com.

It is important that this document is read and maintained in a place that anyone operating the **PoliPUMP** is able to consult it if necessary.

2. GENERAL DESCRIPTION

2.1. PUMP TO POINT LUBRICATION

Dropsa **PoliPUMP** is a quick and easy product that can lubricate friction points without the use of complex metering valves or system design. It provides an affordable, versatile and easy to use product for lubrication that in a few simple steps can be setup and is ready to go. **PoliPUMP** has many applications including vehicle and mobile, machine tools and any type of device or machinery that requires grease lubrication from 1 to 35 lubrication points.

2.2 CHARACTERISTICS

PoliPump contains a series of piston pumping elements driven by an eccentric CAM arrangement that provide positive displacement on the piston. It can be fitted with up to 35 pump elements (24 or 12 for smaller versions). The user can simply configures the standard pump that does not contain any pumping elements and install the designed pumping elements of their choice – simply selecting from 6 different pump element sizes accordingly.

The standard version is equipped with a 2 lt reservoir and a minimum level sensing mechanism.
The stirring paddle and wiper allow the grease to maintain good consistency, prevent separation, and eliminate air bubbles that may form in the grease as well as good pumping performance at low temperatures.
The pump is driven by a geared motor powered at 12 or 24 VDC. The build in controller allows you to select from 12 different timing settings (see par. 7.4).

PoliPUMP is also available with **follower plate** for grease, required with viscous grease and when the pump needs to be able to operate in any orientation, including a fully inverted position.

3. PRODUCT IDENTIFICATION

On the side of the pump there is a label that indicates part number of the product, operating voltage and basic characteristics.

4. TECHNICAL CHARACTERISTICS

GENERAL TECHNICAL CHARACTERISTICS					
Pumping system		*Single acting pump elements with cam activation*			
Drive assembly		*DC motor with gearbox*			
Motor operating voltage		*12V DC*		*24V DC*	
Electronic Protection threshold for motor overload		*0.6 A*			
Nett weight		*1Kg (2.2lb)*			
Number of outlets / pumping max.		*12 – 24 – 35*			
Output connection (pumping outlet)		*Push-in for Ø4 (5/32 in)*			
Nominal output per pump element*		*0,02cc/strokes – RED (1 notch)* *0,03 cc/ strokes – GREEN (2 notches)* *0,04 cc/ strokes – YELLOW (3 notches)* *0,08 cc/ strokes – BLUE (4 notches)* *0,10 cc/ strokes – GREY (5 notches)* *0,13 cc/ strokes – BLACK (6 notches)*			
Max pressure achievable at the outlet of the pumping		*80 bar***			
Reservoir Capacity	Standard version Version with follower plate	*2 l (0.53 gallons)* *4 l (1.06 gallons)*			
Grease capability		*NLGI00 ÷ NLGI2*			
Operating temperature		*-10°C ÷ +60°C (14°F ÷ +140°F)*			
Storage temperature		*-20°C ÷ +80°C (77°F ÷ +176°F)*			
Humidity		*90%*			
Noise		*< 70 db (A)*			
Minimum level signalling/counting revolution		*with hall sensor*			
CONTROL PANEL CHARACTERISTICS					
Working voltages		*12VDC – 24VDC*			
Operating temperature		*-10°C ÷ +60°C (14°F ÷ +140°F)*			
Storage temperature		*-20°C ÷ +80°C (77°F ÷ +176°F)*			
Hardware characteristics		• *Motor Overload protection* • *Input power protection* • *Remote Alarm signal* • *Completed Cycle control sensor*			
Relay alarm contact		NO (in alarm) – I max 5A - Vmax 250V – Pmax 60W			

TECHNICAL CHARACTERISTICS CONNECTOR					
P/N Connector (type)	Nominal Voltage.	N° Poles	Cross section max.	IP	Max. A
0039975 (MPM 203)	*250V-300V*	*3+ ⏚*	*1mm²*	*65*	*10A*

<u>WARNING</u>: Do not operate the unit outside the specified voltage ranges.

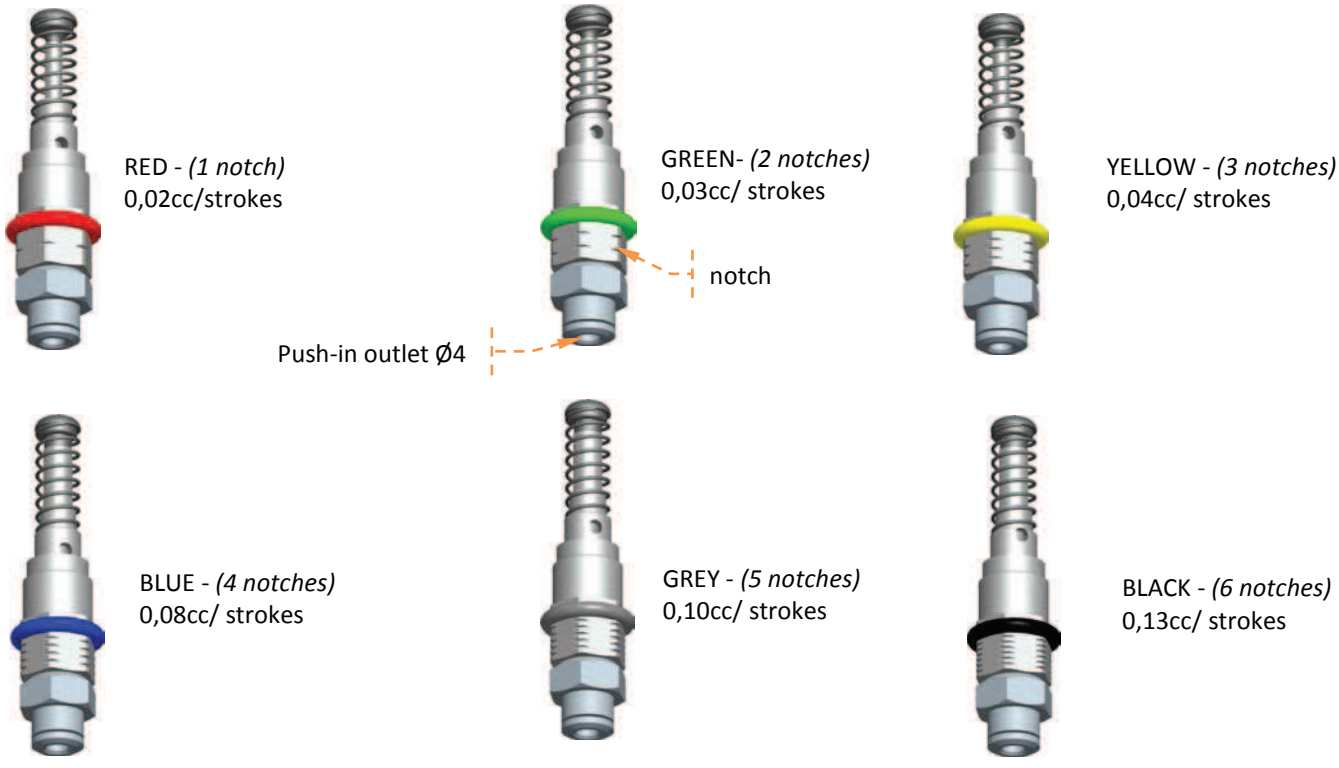
*** NOTE:**
Pump output has been determined at the following conditions: Grease, NLGI 00, Standard environmental conditions (Temperature 20°C / 68°F, Pressure 1 ATM), Back pressure on outlet 5bar (72.5 psi).

**** NOTE:**
The data refers to the maximum operating pressure of each pumping.
Maximum pressure that can be delivered by the pump is a function of several variables (number of pumping elements used, type of grease, operating temperature, see par. 7).

5. PUMP COMPONENTS

PoliPUMP (standard)

PUMP ELEMENTS



PoliPUMP (with follower plate)

6. UNPACKING AND INSTALLING

6.1 UNPACKING

Once a suitable installation position has been identified, unpack the pump and prepare for installation. It is important to inspect the pump to ensure that there has been no damage during transportation. The packaging material used does not require any special disposal procedures. You should refer to you regional requirements.

6.2 PUMPING ELEMENT AND BLANKING PLUG INSTALLATION

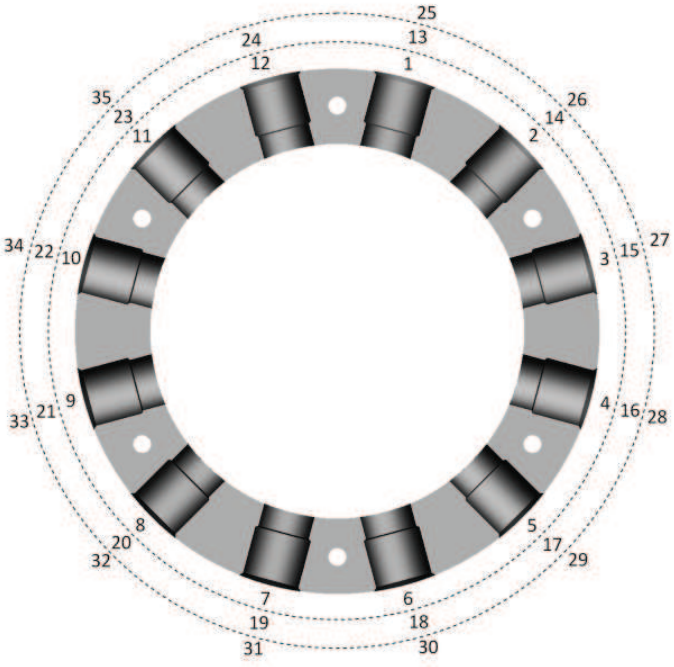
Pumping elements are not included with the pump and must ordered and installed prior to use according to how you want to configure your pump system. Each Pump element is colour coded to represent the discharge volume and is simply screwed into the outlet port manifold. Any unused ports must be closed off with the blanking plugs (included)

To assemble the pumping elements, proceed as follows:

- Identify the best installation position and distribute them evenly in the ports on pumping case cylindrical manifold.

N°	MOUNTING POSITION	N°	MOUNTING POSITION	N°	MOUNTING POSITION
1	1	***13***	13	***25***	25
2	1-7	***14***	13-19	***26***	25-31
3	1-5-9	***15***	13-17-21	***27***	25-29-33
4	1-4-7-10	***16***	13-16-19-22	***28***	25-28-31-34
5	1-2-4-7-10	***17***	13-14-16-19-22	***29***	25-26-28-31-34
6	1-3-5-7-9-11	***18***	13-15-17-19-21-23	***30***	25-27-29-31-33-35
7	1-2-4-5-7-9-11	***19***	13-14-16-17-19-21-23	***31***	25-26-28-29-31-33-35
8	1-2-4-5-7-8-10-11	***20***	13-14-16-17-19-20-22-23	***32***	25-26-28-29-31-32-34-35
9	1-2-3-5-6-7-9-10-11	***21***	13-14-15-17-18-19-21-22-23	***33***	25-26-27-29-30-31-33-34-35
10	1-2-3-4-5-6-7-9-10-11	***22***	13-14-15-16-17-18-19-21-22-23	***34***	25-26-27-28-29-30-31-33-34-35
11	1-2-3-4-5-6-7-8-9-10-11	***23***	13-14-15-16-17-18-19-20-21-22-23	***35***	25-26-27-28-29-30-31-32-33-34-35
12	1-2-3-4-5-6-7-8-9-10-11-12	***24***	13-14-15-16-17-18-19-20-21-22-23-24		

Pumping elements positioning



- Screw the pumping elements and tighten to 10 Nm torque using a 12mm wrench.
- Screw the blanking plugs in the remaining holes with 10 Nm torque using a 12mm wrench or a 6 mm allen wrench.

ATTENTION: Be careful when inserting the pumping element, ensuring that the thread is correctly engage to avoid any damage.

6.3 INSTALLING THE PUMP

- Using the Ø6, 5mm (0.256in) holes and 4 suitable screws place the pump and fix to its support.
- Assembly the pump so that the filling point and the control panel are accessible by the user.
- Allow 100mm (4 inches) perimeter distance around the pump for easy access.
- Ideally, install the pump at a height that is easily and comfortably accessible by the user to facilitate maintenance and refilling.
- Do not install the pump where it may be submerged by liquids of in excessively aggressive environment.
- Do not install the pump in hazardous areas where there may be flammable or explosive materials.
- Do not install near strong heat sources or electrical areas that may cause electrical interference with the control system.
- Ensure that tubing and wiring is appropriately secured and protected.

6.4 PUMP TO POINT GREASE LINE CONNECTIONS

The Grease lines are easily connected using 4mm nylon tube. One tube per lubrication point should be used. Simply push the tube into the pumping element that is equipped with a push in fitting.

Additionally there is a M22x1 port for connecting the Dropsa FAST REFILL adaptor (highly recommended). Alternatively this can be used as a remote fill line. Always ensure proper clean and filtered grease is used with the pump.

WARNING: Tubing must reach the lubrication point in shortest path.

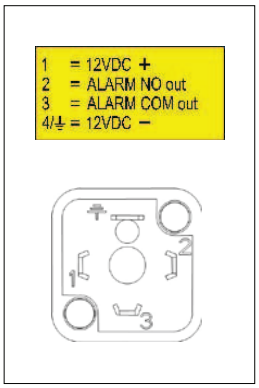
6.5 ELECTRICAL CONNECTIONS

CAUTION: Before carrying out any electrical wiring you should verify the label on the pump to ensure that the correct operating voltage is being used and ensure that all power is removed.

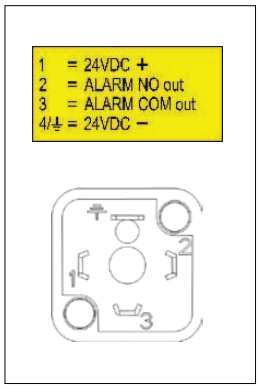
The user provide electrical power connections ensuring correct Voltage as indicated on the label. Additional connections can be made for general remote alarm relay (or ENABLE NRUN and remote 5V alarm for automotive models - see par. 6.5.1)
Connect the pump to the power supply as shown on the pump label located next to the connector.
Ensure the power cable is suitable for the voltage and current in use and complies with all electrical regulations.

6.5.1 Connection Diagrams

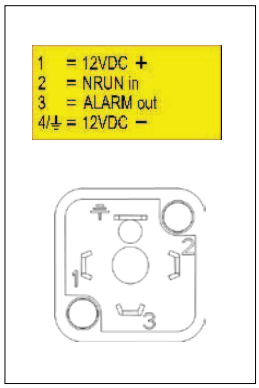
12VDC



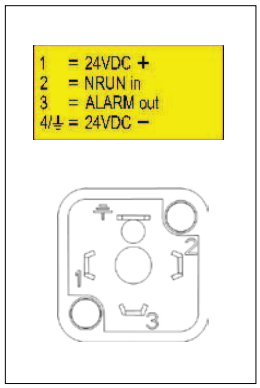
24VDC



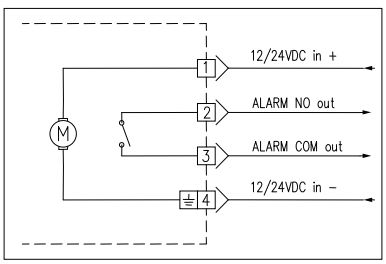
12VDC-NRUN



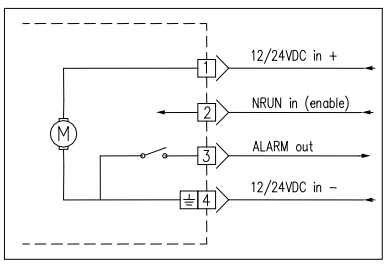
24VDC-NRUN



Standard Connection



Connection with general enabling (Automotive Version)



Automotive version NRUN: Connection with general enabling (NRUN) is used to operate the pump with the host machine. The pump will only operate when the enable signal is present otherwise it will remain in a standby mode indefinitely; the external enable signal is a +5V standard logic signal. The Automotive NRUN version is recommended for use on vehicles.

7. OPERATING INSTRUCTIONS

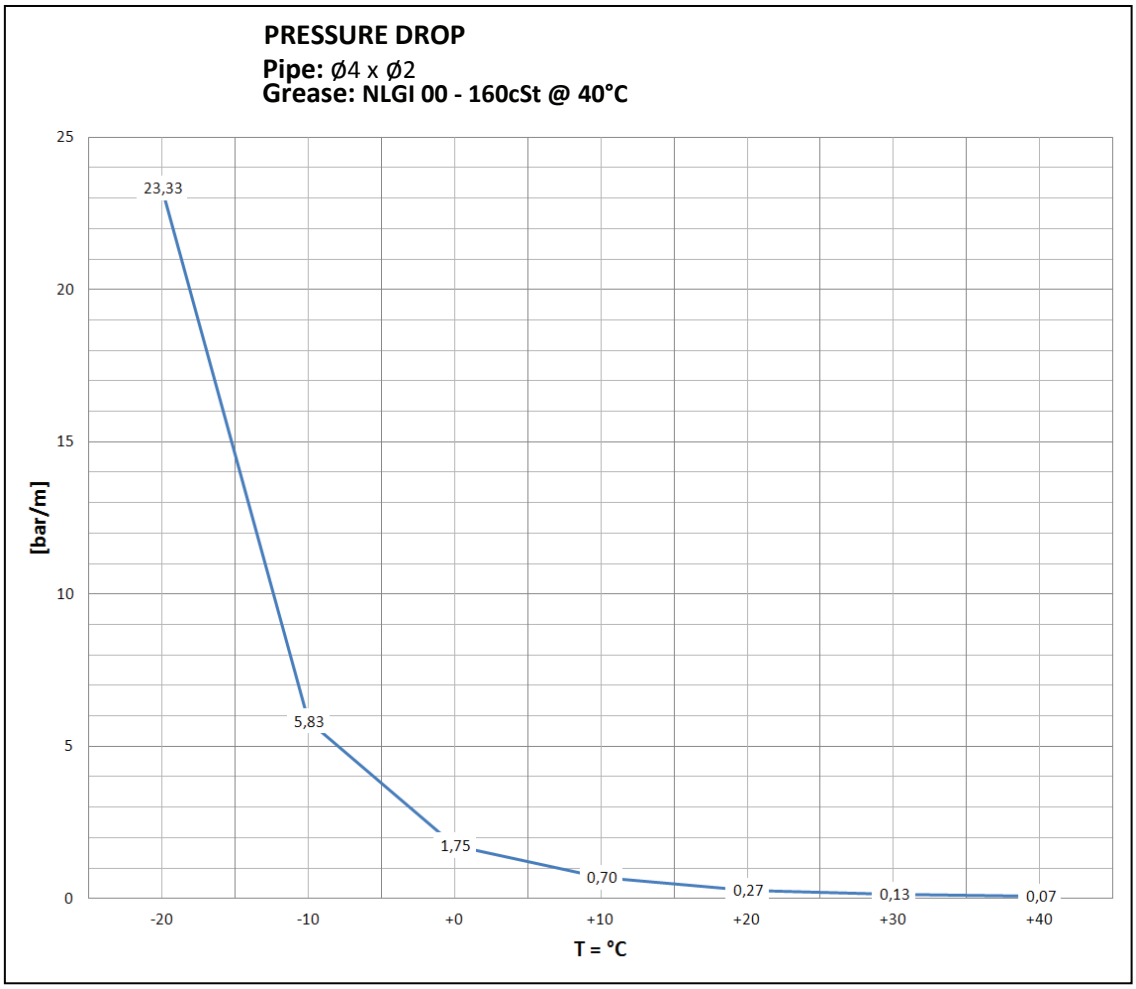
7.1 BEFORE PUTTING INTO OPERATION

- Note that the unit should not be dismantled by the user if a fault is found.
- Use gloves when handling lubricants and ensure you have checked the lubricant safety data sheet.
- Do not use lubricants that are incompatible with NBR (Buna) seals.
- Ensure that you have complied with all health and safety requirements before putting the pump into service.
- Maintain proper hygiene standards. Never ignore any potential danger to heath.
- Ensure all tubing and fittings are designed to handle the maximum system pressure.
- Check integrity in the pump. Ensure no damage;
- Check and fill the reservoir. If the reservoir is below the MIN level, follow procedure 7.3 to refill;
- Verify the pump is at the correct operating temperature and tubing is free of air bubbles;
- Check the unit is properly cabled.

To determine the maximum operating pressure it is necessary to know the pressure drop of the pipes connected to the pumping elements.
The follow diagram shows the pressure drop of the delivery pipe per length unit, according to the temperature and type of lubricant (in this case NLG00 grease with 160 cSt base oil.
To ensure a fully functional system it is always necessary to verify that the pressure drop of the pipe added to the pressure required at the lubrication point does not exceed the maximum pressure that can be generated by the pump.

The maximum pressures reached at the pump outlet are the following:

1÷12 pumping elements = 80 bar 1120 PSI
13÷24 pumping elements = 50 bar 700 PSI
25÷38 pumping elements = 35 bar 490 PSI



7.2 OPERATION

- Check and set the timer selection.
- Ensure remote enable is activated on Automotive NRUN version
- Check that the pump is running.
- Check lubricant is being delivered to the greasing points as necessary.

7.3 REFILLING THE RESERVOIR

Ensure that all ports have been occupied either by pump elements or blanking plugs.
The refilling of the tank is carried out through the dedicated filling ports with adequate filtration to ensure clean lubricant.
Continue to fill unit until the max level is reached/ this level should not be exceed. In the event the user overfills the tank, the excess lubricant will be expelled through vent holes located under the lid.

Manual Grease Nipple Filling

REFILL CARTRIDGE ADAPTOR

<u>WARNING</u>: to avoid introducing contamination into the pump and voiding the warranty ensure that refilling is always carried out through the designated ports using clean grease.
Refer to 14.2 for more information about lubricant characteristics.

7.4 CONFIGURATIO

Control panel layout

GREEN LEDs
Displays the current lubrication cycle setting

UP ARROW
Increases the frequency of lubrication cycle

DOWN ARROW
Decreases the frequency of lubrication cycle

RESET/EXTRA CYCLE
Reset alarms start a lubrication cycle

YELLOW LED - LOCK
Indicates the Keypad is locked. This avoids accidental changing of the lubrication setting

YELLOW LED PUMP MOTOR RUNNING
The pump motor is running

RED LED: LOW VOLTAGE/BATTERY or OVER-VOLTAGE
The input power voltage is outside the safe operating range

RED LED MINIMUM LEVEL
Indicates Low level in tank

RED LED MOTOR BLOCK
The pump exceeded the maximum level of current absorption or was detected Tout Cycle

7.4.1 Setting the Lubrication Cycle
The integrated control board manages the timing, start and stop of the lubrication cycle according to the setting selected by the user using the UP and DOWN **ARROWS.**

The lubrication frequencies available are:
- Cycles per minute: 0.5 – 1 – 2
- Cycles per hour: 3 – 4 – 6 – 10 – 20
- Cycles per day: 12 – 24 – 32 – 48

Alternatively, expressed in minute between cycles:
- Lubrication interval: 0,5 – 1 – 2 – 3 – 6 – 10 – 15 – 20 – 30 – 45 – 60 – 120 minutes

Once cycle means one injection of grease from each of the pumping elements installed. The pump will complete one full rotation.

7.4.2 Cycle Monitoring and Minimum Level Signalling
A Magnetic sensor installed inside the control system monitors the rotation of the cam that activates the pump modules. This allows the **Polipump** to know exactly one rotation and therefore one cycle. Additionally the baffle that rotates will position itself differently in the absence of grease, thereby providing a low level alarm.

The Low level alarm is not cleared by powering the unit off and back on. The only way to clear the low level signal is to press the RESET button on the pump. This will run a lubrication cycle and position the baffle in order to correctly monitor if the grease has been replenished in the reservoir.

7.4.3 Cycle Start synchronization
When the system first starts the pump performs the first lubrication cycle. The position of the pump cam is not known and may not necessarily be in its predetermined start/stop position.
The control system, on first cycle will move the pump cam to the start /stop position. This is known as cycle synchronization. After the first cycle the pump will always start and finish a lubrication cycle from its predetermined start position.

In the event of a power failure the cycle will resume from where the power failed and complete the lubrication cycle by bringing the pump cam to the predetermined start/stop position.

7.4.4 Performing a manual or additional lubrication cycle.
Should it be required, press the Reset button when the pump is not operating to run an additional lubrication cycle.

7.4.5 Alarm and Over-load protection
The built in control system manages the following alarms:

- <u>Minimum level</u>
  As described in par. 7.4.2, the Alarm LED is lit.
  This alarm will occur if the sensor cannot read a complete cycle within a predetermined time due to low grease in the reservoir. Pump will not continue until reservoir is filled and reset is pressed.
- <u>Motor block</u>
  The motor is absorbing too much current and it likely blocked. The Motor block LED is lit. Pump will not continue until Reset is pressed.
- <u>Low voltage/battery low</u>
  If the input voltage is too low (for example discharged battery power) the batter LED is lit. Once power is restored to the minimum supply voltage the pump will continue. A reset is not necessary.
- <u>Over-voltage condition</u>
  If the input voltage exceeds the maximum safe working voltage of the pump the pump will not activate. The battery LED will blink until the voltage returns within valid operating range. The pump will restart by itself. A reset is not necessary.

7.4.6 Keyboard Lock/unlock
After setting the desired lubrication cycle, you can lock the keyboard by pressing the Up Arrow and Down Arrow buttons for 3 seconds, to unlock repeat the same operation. This prevents unintentional modification of the lubrication cycle.

8. TROUBLESHOOTING

Below is a trouble shooting table to show possible problems and solutions.
If you are in any doubt about the correct solution to fixing a problem, do not dismantle parts of the Bravo but contact an Authorized Dropsa Sales and Service Point for technical assistance.

TROUBLESHOOTING TABLE		
PROBLEM	POSSIBLE CAUSE	REMEDIAL ACTION
Pump Motor does not operate	Power missing.	Check the power lines, ensure that any fuse installed is still intact.
	Electronic Controller does not function	Replace electronics board ⚠
	Gear motor no longer works	Replace gear motor assembly ⚠
Pump is operating but no lubricant reaches points	Tubing is disconnected	Check the condition of tubing in the system and ensure that it is correctly secured and not blocked for example, by hardened grease.
Lubricant does not reach lubrication points on each pump cycle or irregularly	Incorrect setting of the cycle time.	Select a more frequent lubrication cycle.
No lubricant from pump	Reservoir is empty	Refill, and verify any low level alarms
	Air bubble in grease	Disconnect the primary tubing from the pump and operate a lubrication cycle. Check that clean, air free grease is coming from the pump and then reconnect the tubing.
	Incompatible lubricant	Some lubricants are not suitable for automatic pumping systems. Replace the grease.
	Blocked pumping element	Dismantle the pumping element and check for contamination. Clean and reinstall or repalce
	Worn pump element	Replace pump element.
	Pump element Check worn	Replace pump elment.
The pump starts the lubrication cycle but then immediately stops	Defective or blocked Pump motor.	Allow the pump to cool. Retry the lubrication cycle. If the problem persists It will be necessary to replace the pump motor assembly ⚠

⚠ **: Allowed only specialized Dropsa's staff**

ALARM CODES		
LED	ALARM	REMEDY
	Gear motor overload	Leave the motor to cool for a few minutes and try again. Check to see that the pump is operating normally and there is no contamination in the tank that may be blocking the motor.
	Cycle does not perform in predetermined maximum time.	Check the motor is free to operate and there is no contamination in the reservoir. Replace the sensor or damaged gear motor if necessary. Customers are advised to contact a registered Dropsa dealer.
	Low lubricant level in reservoir	Refill with clean lubricant.
	Input Voltage outside permitted range	If using a battery, check the charge on the battery and replace if necessary. Check that the supply voltage is not outside permitted thresholds.

NOTE: To cancel alarm message push "Reset".

9. MAINTENANCE PROCEDURE

WARNING: Before carrying out any maintenance operation, ensure that power and hydraulic system are disconnected.

The Bravo pump does not necessitate any special tool for operation and maintenance. When working with the Bravo pump it is nonetheless recommended that personal health and safety equipment is used as is normal for any operation in an industrial or similar workplace to best safeguard the user from harm.
The Bravo pump has been designed and built as to require minimal maintenance and operate in diverse and challenging operating environment. It is recommend that the unit is inspected and kept clean to ensure long life and trouble free operation. It is important to check all tubing on the system to ensure that it is always tight and leak free.

9.1 Programmed and operational Maintenance

The following operations should be performed on the pump.

ITEM	FREQUENCY	OPERATION
Integrity of tubing and system	After initial 500 hours. Every1500 hours.	Check fittings and tubing secured. Verify components are correctly fixed to machine.
Reservoir level	As needed.	Top up level with clean lubricant.
Filling Filter	As needed, or once per year.	Check and replace as necessary.

10. DISPOSAL

During maintenance or disposal of the machine care should be taken to properly dispose of environmentally sensitive items such as oils or other lubricants. Refer to local regulations in force in your area. When disposing of this unit, it is important to ensure that the identification label and all the other relative documents are also destroyed.

11. ORDERING INFORMATION

STANDARD PUMP				
N° Max. PUMPING	POWER			
	12VDC Industrial	24VDC Industrial	12VDC Automotive (NRUN)	24VDC Automotive (NRUN)
12	0888270	0888273	0888276	0888279
24	0888271	0888274	0888277	0888280
35	0888272	0888275	0888278	0888281
PUMP WITH FOLLOWER PLATE				
N° Max. PUMPING	POWER			
	12VDC Industrial	24VDC Industrial	12VDC Automotive (NRUN)	24VDC Automotive (NRUN)
12	0888282	0888285	0888288	0888291
24	0888283	0888286	0888289	0888292
35	0888284	0888287	0888290	0888293

PUMPING					
FLOW RATES					
0,02cc/ cycle	0,03cc/ cycle	0,04cc/ cycle	0,08cc/ cycle	0,10cc/ cycle	0,13cc/ cycle
0888451	0888452	0888453	0888454	0888455	0888456

OPTIONAL

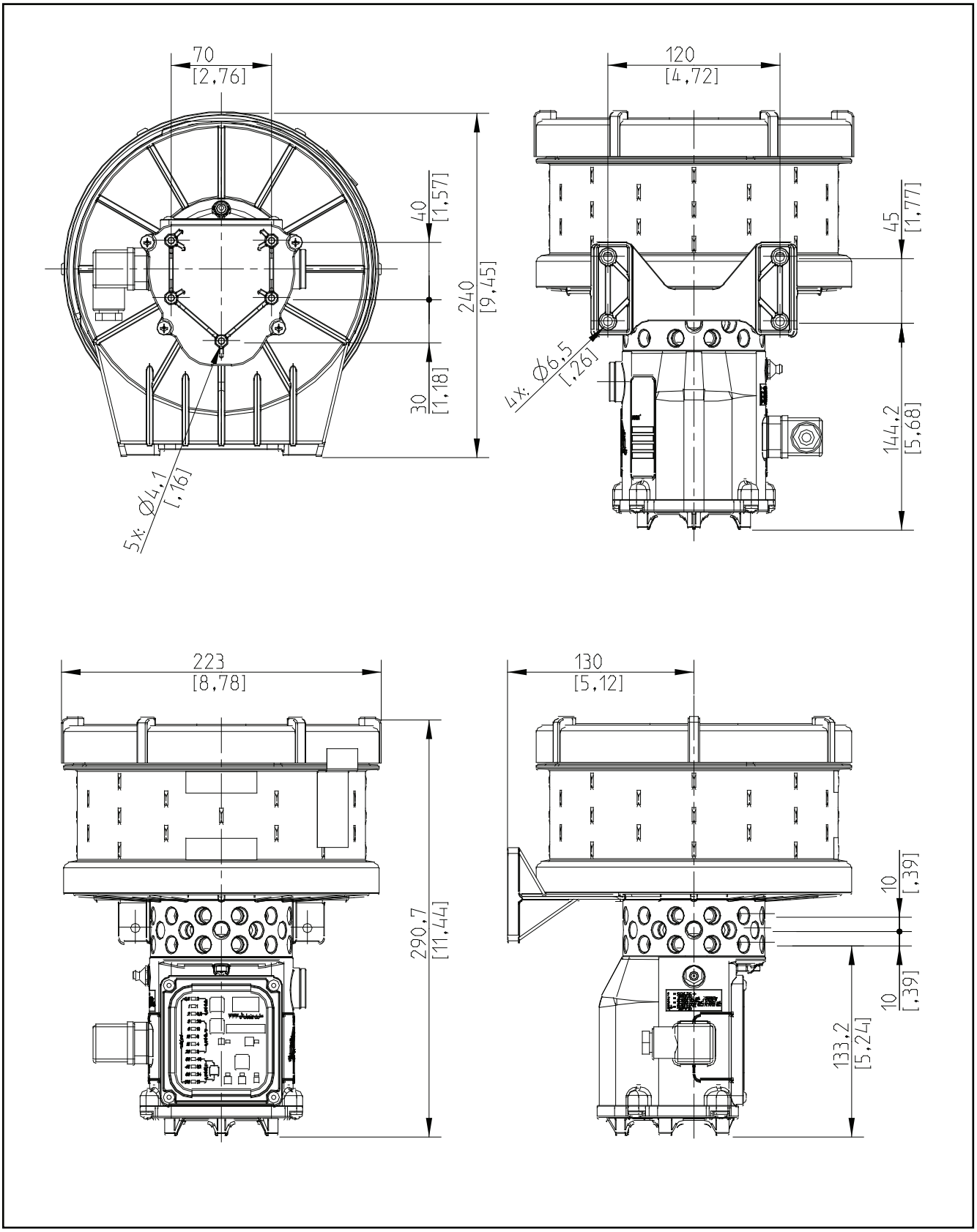
PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
5717300	Ø4x3 Nylon Tubes (low pressure)	0888038	Grease cartridge filling kit
5717218	Ø4x2 Nylon Tubes	3133723	Grease cartridge filling kit with valves
0888386	Clamping kit (only for version with follower plate)		

SPARE PARTS

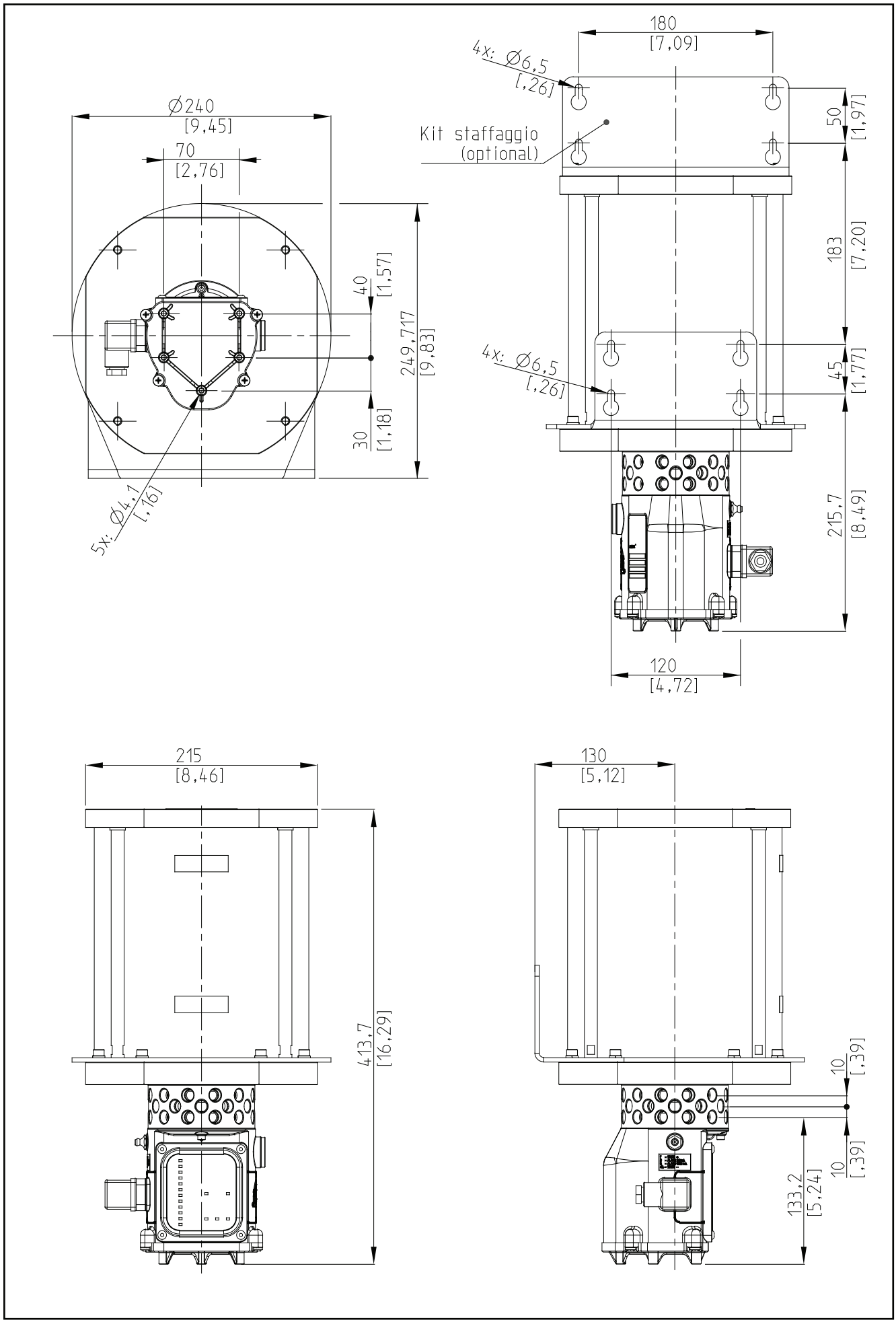
PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
0888257	Blanking Plugs for unused pump elements	3130022	Replacement filling filter
0888116	Reservoir (standard)		

12. DIMENSIONS

PoliPUMP (standard)



Dimensions in ***mm [in].***



Dimensions in ***mm [in].***

13. HANDLING AND TRANSPORTATION

Prior to shipping, the equipment is carefully packed in cardboard package. During transportation and storage, always maintain the pump the right way up as indicated on the box. On receipt check that package has not been damaged. Then, storage the machine in a dry location.

14. OPERATING HAZARDS

WARNING: It is necessary to carefully read about the instructions and the risks involved in the use of lubrication machines. The operator must know the machine functioning through the User and Maintenance Manual.

Power supply

Any type of intervention must not be carried out before unplugging the machine from power supply. Make sure that no one can start it up again during the intervention.

All the installed electric and electronic equipment, reservoirs and basic components must be grounded.

Flammability

The lubricant generally used in lubrication systems is not flammable. However, it is advised to avoid contact with extremely hot substances or naked flames.

Pressure

Prior to any intervention, check the absence of residual pressure in any branch of the lubricant circuit as it may cause oil sprays when disassembling components or fittings.

Noise

Pump produces noise, not more than 70 dB(A).

14.1 LUBRICANTS

NOTE: The pump has been designed to operate with grease max NLGI 2.
Always use lubricants compatible with NBR (Buna) Rubber seals.
Any residual lubricant found on new units is residual NLGI 2 test grease used during the assembly of the pump.

The following is a comparison table between NLGI (National Lubricating Grease Institute) and ASTM (American Society for Testing and Materials) between greases, showing the permissible values for the **PoliPUMP**.

GREASE	
NLGI	**ASTM**
00	400 – 430
0	355 – 385
1	310 – 340
2	265 – 295

For further technical information and on safety information consult the lubricant MSDS Safety data sheet or equivalent document supplied by the lubricant manufactuer.

15. PRECAUTIONS

The verification of conformity with the essential safety requirements and regulations of the Machine Directive is effected by means of the compilation of a check list which has been pre-prepared and is contained in the *technical file.*

The lists which are utilised are of three types:

- list of dangers (appendix A, EN 1050).
- application of essential safety requirements.
- electrical safety requirements (EN 60204).

Following is a list of dangers which have not been fully eliminated but which are considered acceptable:

- During installation there may be small low pressure oil seepage from the pump. Always use appropriate protective clothing, gloves and take all necessary safety precautions.
- Contact with lubricant during maintenance or filling of the reservoir. → As per previous point, correct precautions must be taken to protect from contact with lubricant.

- Moving Parts and crush danger. → All moving parts are enclosed within the pump unit. Do not open the pump unit. Appropriate danger labels are located on the pump.
- Electric shock. → All electrical connections must be carried out by a qualified electrician who has studied the connection to ensure no electrical danger.
- Abnormal operation posture. → The pump should be installed in a suitable position with ample clearance as indicated in this manual to avoid abnormal posture for the operator.
- Unsuitable Lubricant. →Lubricant characterstics are indicated on the pumpa nd in this user manual. In any case contact a Dropsa Sales and Support engineer (**if in any doubts, contact the Technical Department Dropsa SpA**).

FLUIDS EXPLICITY NOT ALLOWED	
Fluid	**Dangers**
Lubricants with abrasive additives	Lubricants with abrasive additives
Lubricants with silicone based additives	Lubricants with silicone based additives
Petrol – solvents – inflammable liquids	Petrol – solvents – inflammable liquids
Corrosive products	Corrosive products
Water	Water
Food substances	Food substances

16. WARRANTY

All products manufactured and marketed by Dropsa are warranted to be free of defects in material or workmanship for a period of at least 12 months from date of delivery. Extended warranty coverage applies as follows:

Complete system installation by Dropsa: 24 Months.

All other components: 12 months from date of installation; if installed 6 months or more after ship date, warranty shall be maximum of 18 months from ship date.

If a fault develops, notify Dropsa giving:

- ✓ a complete description of the alleged malfunction
- ✓ the part number(s)
- ✓ test record number where available (format xxxxxx-xxxxxx)
- ✓ date of delivery
- ✓ date of installation
- ✓ operating conditions of subject product(s)

We will subsequently review this information and supply you with either servicing data or shipping instruction and returned materials authorization (RMA) which will have instructions on how to prepare the product for return.

Upon prepaid receipt of subject product to an authorized Dropsa Sales & Service location, we will then either repair or replace such product(s), at out option, and if determined to be a warranted defect, we will perform such necessary product repairs or replace such product(s) at our expense.
Dropsa reserves to right to charge an administration fee if the product(s) returned are found to be not defective.

This limited warranty does not cover any products, damages or injuries resulting from misuse, neglect, normal expected wear, chemically caused corrosion, improper installation or operation contrary to factory recommendation. Nor does it cover equipment that has been modified, tampered with or altered without authorization.

Consumables and perishable products are excluded from this or any other warranty.

No other extended liabilities are states or implied and this warranty in no event covers incidental or consequential damages, injuries or costs resulting from any such defective product(s).

The use of Dropsa product(s) implies the acceptance of our warranty conditions. Modifications to our standard warranty must be in made in writing and approved by Dropsa.

17. DECLARATION OF COMPLIANCE

Dropsa Spa
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Italy

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AN ISO 9001 APPROVED COMPANY

DICHIARAZIONE CE DI CONFORMITÁ/DECLARATION OF COMPLIANCE WITH STANDARDS/ DECLARATION DE CONFORMITE/ KONFORMITÄTSERKLÄRUNG DES STANDARDS /DECLARACIÓN DE CONFORMIDAD/ DECLARAÇÃO DE CONFORMIDADE

La società Dropsa S.p.A., con sede legale in Milano, Via Besana,5/ Dropsa S.p.A., registered office in Milan, Via Besana,5 / Dropsa S.p.A. au Siège Social à Milan, Via Besana,5/ Dropsa S.p.A., Sitz in Milano, Via Besana 5/ La sociedad Dropsa S.p.a., con sede legal en Milán, Via Besana,5/ A Dropsa S.p.A, com sede em Milão, via Besana, nº 5

DICHIARA /CERTIFIES / CERTIFIE/ ZERTIFIZIERT, DASS/ DECLARA/ CERTIFICA:

che il prodotto denominato/that the product called/ le produit appelè/ das Produkt mit dem Namen/ el producto que se llama/ o produto chamado:

Descrizione/ Description/ Description/ Beschreibung/ Descripción/ Descrição:	**Multi-outlet Pump**
Nome Commerciale/ Product Name/ Dénomination/ Handelsname/ Denominación/ Denominação:	**PoliPUMP**
Versioni/ Versions/ Versions/ Versionen/ Versiones/ Versões:	**All versions**
Codici/ Codes/ Códigos/:	**0888270÷0888293**

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è conforme alle condizioni previste dalle Direttive CEE /has been constructed in conformity with the Directives Of The Council Of The European Community on the standardization of the legislations of member states/ a été construite en conformité avec les Directives Du Conseil Des Communautes Europeennes/ Entsprechend den Richtlinien des Rates Der Europäischen Union, für die Standarisierung der Legislative der Mitgliederstaaten, konstruiert wurde/ cumple con las condiciones establecidas por las directivas comunitarias/ foi construído em conformidade com as diretivas do Conselho das Comunidades Europeias:

- 2006/42 CE Direttiva macchine /Machinery Directive/ Directive machines/ Maschinenrichtlinien/Maquinaria / Directiva Máquinas;
- 2004/108 CE Compatibilità elettromagnetica/ Electromagnetic Compatibility/ Compatibilité electromagnétique/ Elektromagnetische Verträglichkeit/ Compatibilidad electromagnetica / Compatibilidade Eletromagnética
- 2004/104 CE Compatibilità elettromagnetica dei veicoli a motore/ Automotive Electromagnetic Compatibility/ Compatibilité électromagnétique automobile/ Automotive Elektromagnetische Verträglichkeit/ Compatibilidad Electromagnética Automotriz/ Compatibilidade Eletromagnética Automotive

CE

La persona autorizzata a costituire il Fascicolo Tecnico c/presso Dropsa S.P.A.
The person authorized to compile the Technical File care of Dropsa S.P.A.

Technical Director:
Maurizio Greco
.....

Legal representative
Milena Gavazzi
.....

Vimodrone (MI), Maggio 2012